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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,447	07/01/2003	David M. Giorgi	00970.0009-US-01	5064
22865	7590	06/30/2005	EXAMINER	
ALTERA LAW GROUP, LLC 6500 CITY WEST PARKWAY SUITE 100 MINNEAPOLIS, MN 55344-7704			SOWARD, IDA M	
			ART UNIT	PAPER NUMBER
			2822	

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/611,447	GIORGI ET AL.	
	Examiner	Art Unit	
	Ida M. Soward	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31, 41-92 and 95-99 is/are pending in the application.
- 4a) Of the above claim(s) 41-88 and 96-99 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 13-18, 22-26, 89, 91 and 95 is/are rejected.
- 7) ☒ Claim(s) 2-12, 19-21, 27-31, 89, 90 and 92 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7-1-2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the election filed April 27, 2005.

Election/Restrictions

Applicant's election with traverse of claims 1-31, 89-92 and 95 in the reply filed on April 27, 2005 is acknowledged. The traversal is on the ground(s) that first, some figures and correspondence of claims thereto are not addressed; second, the correspondence between the identified claim groups and figures is largely incorrect; and third, the presence of linking claims was not addressed. This is not found persuasive because a restriction of species is to identify the various species and connect them with the different embodiments of the application.

The requirement is still deemed proper and is therefore made FINAL.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

The abstract of the disclosure is objected to because "**comprises**" should have been includes in line 8. Correction is required. See MPEP § 608.01(b).

Claim Objections

Claims 2 and 89 are objected to because of the following informalities:

1. In regard to claim 2, layer should have followed “**second electrode**” in line 3.
2. In regard to claim 89, “**grove**” should have been groove in line 5

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 13-18, 22-26, 89, 91 and 95 are rejected under 35 U.S.C. 102(b) as being anticipated by Konishi et al. (4,216,487).

In regard to claim 1, Konishi et al. teach a light-activated semiconductor switch device, comprising: a semiconductor switch comprising a first n-doped layer NE1 and a first p-doped layer PB1 forming a switch blocking, a switch axis (bidirectional) lying perpendicular to the switch blocking junction, a groove 8 having a light refracting side wall extending into the first n-doped layer NE1 from a side of the n-doped layer opposite from the switch blocking junction, at least a portion of the light refracting side wall being disposed non-parallel to the switch axis (Figure 10, columns 5-6, lines 35-68 and 1-59, respectively).

In regard to claim 2, Konishi et al. teach the switch device being a diode, and comprising a first electrode layer 4 disposed over the first n-doped layer NE1 and a second electrode 5 disposed over the first p-doped layer PB1 (Figure 10, columns 5-6, lines 35-68 and 1-59, respectively).

In regard to claim 13, Konishi et al. teach a light source 931 disposed to direct light into the switch via the groove 8 (Figure 10, columns 5-6, lines 35-68 and 1-59, respectively).

In regard to claim 14, Konishi et al. teach the light source 931 comprises a light guide 91 & 92 to couple light from the light source 931 into the switch (Figure 10, columns 5-6, lines 35-68 and 1-59, respectively).

In regard to claim 15, Konishi et al. teach the light guide 91 & 92 disposed within the groove 8 (Figure 5).

In regard to claim 16, Konishi et al. teach the light source 931 mounted to a plate 9 & 93 position proximate the switch so as to illuminate the groove 8 (Figure 10, columns 5-6, lines 35-68 and 1-59, respectively).

In regard to claim 17, Konishi et al. teach the groove 8 enters the switch from a first side and the light source 931 disposed to the first side of the switch, wherein the light entering the switch from the light source 931 is refracted at the side wall (Figure 10, columns 5-6, lines 35-68 and 1-59, respectively).

In regard to claim 18, Konishi et al. teach the switch comprise a window to permit light entering a second side of the switch opposing the first side to reflect light at the groove 8 side wall (Figure 10, columns 5-6, lines 35-68 and 1-59, respectively).

In regard to claim 22, Konishi et al. teach the groove 8 extends from the first n-doped layer NE1 into the first p-doped layer PB1 (Figure 10, columns 5-6, lines 35-68 and 1-59, respectively).

In regard to claim 23, Konishi et al. teach the groove 8 being a V-groove (Figure 10).

In regard to claim 24, Konishi et al. teach the groove 8 having sloped side walls and a flat bottom portion (Figure 15).

In regard to claim 25, Konishi et al. teach the groove 8 having sloped side walls and a rounded bottom portion (Figure 7).

In regard to claim 26, Konishi et al. teach the groove 8 having first and second sloped walls, the first sloped wall forming a first angle with the switch axis and the second sloped wall forming a second angle with the switch axis, a magnitude of the first angle being different from a magnitude of the second angle (Figure 14).

In regard to claim 89, Konishi et al. teach a semiconductor switch comprising: a first p-doped layer PB1; a first n-doped layer NE1 forming a switch blocking junction, the switch blocking junction being substantially perpendicular to a switch axis (bidirectional); a groove 8 having a side wall, the side wall being disposed at least in the first n-doped layer NE1 and at a non-zero angle relative to the switch blocking junction and to the switch axis; and means 931 for refracting light absorbable by the switch at the side wall (Figure 10, columns 5-6, lines 35-68 and 1-59, respectively).

In regard to claim 91, Konishi et al. teach the side wall extending from the first n-doped layer NE1 into the first p-doped layer PB1 (Figure 10, columns 5-6, lines 35-68 and 1-59, respectively).

In regard to claim 95, Konishi et al. teach the groove 8 terminates in the first n-doped layer NE1 away from a first p-doped layer PE2 (Figure 10, columns 5-6, lines 35-68 and 1-59, respectively).

Allowable Subject Matter

Claims 3-12, 19-21, 27-31, 90 and 92 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to light-activated semiconductor switch devices:

Angerstein et al. (4,613,884)

Dahlberg (4,441,115)

Inomoto (US 6,489,177 B1)

Kasahara et al. (4,910,571)

Nakata (3,697,833)

Nishizawa et al. (4,866,500)

Satoh et al. (5,637,886).

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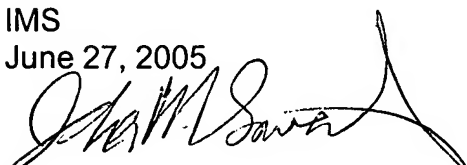
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ida M. Soward whose telephone number is 571-272-1845. The examiner can normally be reached on Monday - Thursday 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

IMS

June 27, 2005


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